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Patent Application of
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for

**TITLE: PORTABLE PEDAL EXTENSION, STEP, FOOTREST,
AND BRIEFCASE FOR SMALL PIANISTS**

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CROSS-REFERENCE TO RELATED APPLICATIONS Not Applicable

FEDERALLY SPONSORED RESEARCH Not Applicable

SEQUENCE LISTING OR PROGRAM Not Applicable

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FIELD OF THE INVENTION

This invention relates to piano pedal extensions, which are used by children or people with short legs.

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BACKGROUND

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The damper pedal on a piano is critical for a pianist to properly play a musical piece. Most people can reach the damper pedal. However, children and people with short legs have difficulty reaching the damper pedal. This difficulty results in improper use of the damper pedal.

Prior to the twentieth century, small pianos were manufactured for children. As the piano manufacturing industry became more standardized, however, pianos for children were phased out in favor of full-sized pianos.

5 Thereafter, numerous inventors created several types of pedal extensions to help children and people with short legs to reach the damper pedal of full-sized pianos. Prior art patents going back to 1886 were perused. None of the patents perused meet the modern needs of small pianists. This can be shown, for example, by examining the following recent patents: U.S. Pat. Nos. 2,213,800 to Ege, et al (1939); 2,463,910 to Rydstrom (1947); 4,418,604 to Kim (1983); and 5,039,054 to
10 Pai (1991).

 The prior pedal extensions are too heavy or large to be portable by children. The prior pedal extensions cannot be attached and adjusted by a student without adult assistance. However, a child may be disqualified if assisted by an adult in some contests and auditions. Some prior pedal extensions are suitable either for a grand
15 piano or an upright piano, but not both. The prior pedal extensions cannot be used as a briefcase. However, books must be carried to a lesson. Thus, there's a need for a portable pedal extension that can combine these functions. The pedal extension should be easily transportable to any piano for lesson, practice, or performance. In summary, none of the prior pedal extensions meet today's needs for small pianist to
20 properly play a full-sized piano.

OBJECTS AND ADVANTAGES OF THIS INVENTION

 Several objects and advantages of this pedal extension are:

- 25 (a) to provide an extension to the damper pedal for small pianists;
- (b) to provide a step;
- (c) to provide a footrest;
- (d) to serve as a lightweight briefcase;
- (e) to fit all modern pianos;
- (f) to be used by children without adult assistance.

Further advantages will become apparent from a consideration of the ensuing description and drawings.

SUMMARY

5 This pedal extension is comprised of a rectangular box for use by small pianists. It has three uses:

1. The box attaches to the una corde and sostenuto pedals of a piano. These pedals are slipped between an elastic cord and a pressure bar. The
10 front of the box also has adjustable feet to provide additional force to hold the pressure bar against the pedals. This holds the box in place so small pianists can use it both as a step to reach the piano bench and a footrest.

2. It is a pedal extension for small pianists to correctly utilize the damper pedal on a piano. It consists of an extension pedal that is attached to the top of the
20 box by a hinge. Connected to this extension pedal is a push rod that extends down through a slot in the top surface of the box. On the lower end of this push rod is a push knob that rests upon the piano's damper pedal. The length of the push rod can
25 be changed so that the extension pedal is at a convenient operating height. By pressing and releasing the extension pedal, the pianist is able to operate the damper
30 pedal.

3. The box is lightweight, hollow, and has a handle and fabric bag so it can be used as a briefcase to carry music books and other items.

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DRAWINGS—FIGURES

The pedal extension will be further explained with reference to the drawings:

FIG. 1 is a perspective view of the front end of the pedal extension showing the components of its rectangular box.

FIG. 2 is a perspective view of the front end of the pedal extension showing the elastic cord on top of the una corde and sostenuto pedals, the pressure bar
5 under these pedals, and the push knob of the extension pedal engaging the piano damper pedal.

FIG. 3 is a perspective view of the back end of the pedal extension showing a dotted outline representing a fabric bag which can be used to store books and other items. The pedal extension is shown in the position in which it would be
10 carried by its handle.

These figures are not precisely to scale and are intended to be merely illustrative and non-limiting.

15 DRAWINGS—REFERENCE NUMERALS

- 10a-10d longitudinal bar
- 12a-12h vertical bar
- 14a-14c upper-cross bar
- 16a-16c lower-cross bar
- 20 18a-18c upper-rear-reinforcing bar
- 20 rigid-plastic sheet
- 22 oblong slot
- 22 una corde pedal
- 24 sostenuto pedal
- 25 28 damper pedal
- 30 grip knob
- 32 elastic cord
- 34 pressure bar
- 36 attachment rod
- 30 38a-38d strap and wing nut

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- 40a-40b height-adjustable rod
- 42a-42b front foot
- 44a-44b rear foot
- 46 wing nut
- 5 48 adjusting knob
- 50 threaded rod
- 52 hinge plate
- 54 push knob
- 56 extension pedal
- 10 58 hinge
- 60 rubber pad
- 62a-62d rubber-sheet
- 64 handle
- 66 extension bar
- 15 68 fabric storage bag

ILLUSTRATIVE EMBODIMENT—FIGS. 1, 2, AND 3

Design and Construction of the Rectangular Box

- 20 FIG. 1 illustrates a perspective view of the front end of this embodiment. This embodiment is in part a rectangular box constructed of right angle aluminum bars. The bars are screwed together to form a lightweight, strong frame. The frame must be long enough to reach from the front of the piano pedals to the pianist's feet to provide a comfortable footrest, but not so long as to put the pianist
- 25 uncomfortably far from the piano. The length of the box is determined by longitudinal bars 10a to 10d, which in this embodiment is approximately 41cm. The height of the frame must be such to provide small pianists comfortable access to the extension pedal. The height of the box is determined by vertical bars 12a to 12h, which in this embodiment is approximately 12 cm. The assembly is done by

screwing bars 12a to 12d to bars 10a and 10b, and bars 12e to 12h to bars 10c and 10d. The width of the frame must accommodate the three pedals of all pianos. The width is determined by the upper-cross bars 14a to 14c and the lower-cross bars 16a to 16c, which in this embodiment is approximately 29 cm. Next the box is
5 assembled by screwing bars 14a to 14c to bars 10b and 10c, and bars 16a to 16c to bars 10a and 10d. The frame must be sufficiently sturdy to permit a pianist to step on the box to reach the piano bench (not shown). Thus, upper-reinforcing bars 18a to 18c are screwed to the upper-cross bars 14a and 14b. The upper surface of the rectangular box consists of a rigid-plastic sheet 20 screwed to the frame. In this
10 embodiment, the plastic sheet 20 is approximately 1.6 mm thick. There is an oblong slot 22 cut into the plastic sheet 20 to allow access to the damper pedal. In this embodiment the oblong slot 22 is approximately 8 cm long by 1 cm wide.

15 Design and Construction For Attachment of Embodiment to Piano, and of Extension Pedal Mechanism

FIG. 2 illustrates a perspective view of this embodiment showing its relationship to a piano's pedals when in use. The piano pedals are the una corde 24, the sostenuto 26, and the damper 28. The grip knob 30 is tied to the elastic cord 32 with a knot through a hole in the knob. The elastic cord 32 is wound about the
20 pressure bar 34 to secure it to the pressure bar. The pressure bar 34 is screwed to the vertical bar 12a (FIG. 1) and the attachment rod 36. The length of the pressure bar 34 is about 15 cm. The attachment rod is threaded and attached with nuts to cross bar 14c (FIG. 1).

Also shown in FIG. 2, are strap and wing nut assemblies 38a to 38d. The
25 straps of these assemblies 38a to 38d secure the height-adjustable rods 40a and 40b to vertical bars 12a and 12h (FIG. 1) and when loosened allow the height of the rods 40a and 40b to be changed. The rods 40a and 40b are attached to the front feet 42a and 42b. The rear feet 44a and 44b are screwed to longitudinal bars 10a and 10b (FIG. 1).

FIG. 2 further shows the wing nut 46 and the adjusting knob 48 on the threaded rod 50. The threaded rod 50 is screwed through the threaded hinge plate 52 and the extension pedal 56. The push knob 54 is screwed onto the end of the threaded rod 50. The hinge plate 52 is screwed to the extension pedal 56, and the hinge 58 of the hinge plate 52 is screwed to the upper bar 14c (FIG. 1). This essentially attaches the extension pedal 56 to the box via the hinge 58. The rubber pad 60 is glued to the plastic sheet 20 (FIG. 1) beneath the pedal 56. Rubber-sheeting 62a to 62d is glued to the front surfaces of bars 12a, 12h, 14c, (FIG. 1) and pressure bar 32.

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Design of the Briefcase

FIG. 3 shows the position of the box when used as a briefcase. It shows the handle 64 screwed to the vertical bar 12b (FIG. 1) and the extension bar 66. The extension bar 66 is screwed to the vertical bar 12c (FIG. 1). In the cavity of the box dashed lines show the fabric storage bag 68.

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Operation of the Illustrative Embodiment—FIGS. 2 AND 3

FIG. 2 illustrates a perspective view of this embodiment showing its relationship to a piano's pedals when in use. The piano pedals are the una corde 24, the sostenuto 26, and the damper 28. The grip knob 30 attached to the elastic cord 32 is used to lift the elastic cord over the una corde 24 and the sostenuto 26 pedals. The pressure bar 34 is positioned beneath the pedals 24 and 26. The elastic cord 32 is attached to the pressure bar 34 and secures the pressure bar 34 to the pedals 24 and 26. The pressure bar 34 is short enough so that it doesn't interfere with the operation of the damper pedal 28. The box must be positioned so that the push knob 54 contacts the outer end of the damper pedal 28. In this embodiment, the push knob 54 is plastic, round, and slightly convex so it can slide smoothly on the damper pedal 28. The push knob 54 is large enough (approximately 4 cm in diameter) so that it will not slip off the damper pedal 28.

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To more securely attach the box to the pedals **24** and **26**, the wing nut and strap assemblies **38a** and **38b** are first loosened. The box is lifted up against the pedals **24** and **26**. The left height-adjustable rod **40a** is pushed downward so the front foot **42a** presses strongly on the floor. The left strap and wing nut assemblies **38a** and **38b** are then retightened. Next, the right strap and wing nut assemblies **38c** and **38d** are loosened, the rod **40b** pressed down as before and the right strap and wing nut assemblies **38c** and **38d** are retightened. In this embodiment the rear feet **44a** and **44b** are of fixed height. This gives the footrest an approximate total height of 14 cm from the floor. The height of the footrest from the floor is most critical. Preferably, heights ranging from about 10 cm to 20 cm have been found to be satisfactory. The front end of the box will usually be slightly higher than the back end because the adjustable feet are usually set higher than the fixed feet. It was discovered that this slight tilt angle makes the extension pedal more effective in operating the piano's damper pedal. All of the feet on this embodiment are made of soft plastic to minimize slip and to protect floors from scratches.

To adjust the extension pedal **56**, the wing nut **46** is first loosened. This allows the adjusting knob **48** to be turned. The adjusting knob **48** is turned either clockwise or counter-clockwise until the extension pedal **56** is at a comfortable operating height for the pianist. Also, the extension pedal **56** must be high enough so that the piano damper pedal **28** operates properly. The oblong slot **22** in the plastic sheet **20** is long enough to give a large range of motion to the threaded rod **50** and hence the extension pedal **56**. After the height adjustment has been made, the wing nut **46** is securely tightened to keep the extension pedal **56** at the proper height. The damper pedal **28** is activated when the pianist presses the extension pedal **56**. The pianist sits with his or her left foot on top of the plastic sheet **20**. The right heel of the pianist's foot also sits on top of the plastic sheet **20** and the right toes operate the extension pedal **56**. The rubber pad **60** beneath the extension pedal **56** quiets the sound of the extension pedal **56** when fully depressed. The

rubber sheeting 62a to 62d not only protects the piano from scuffing but also provides sound deadening when the box is accidentally bumped.

To remove the invention from the piano, the height-adjustable rods 40a and 40b are loosened and pulled upward until they stop, and then are retightened. This eliminates the force on the pressure bar 34 caused by the contact of the front feet 42a and 42b with the floor. The invention can then be pulled away from the piano pedals. It can then be carried to another piano and the above procedure for its use repeated.

This embodiment is easily used as a briefcase. FIG. 3 shows the available storage space, which is approximately 34 cm long, 26 cm wide, and 9 cm high. This space accommodates a fabric storage bag 68. The total weight of this embodiment with the fabric storage bag is approximately 1.4 kilograms. This is light enough for small children to use as a briefcase when carried by the handle 64. When the pianist has arrived at his or her destination, the storage bag must be removed to use the extension pedal 56 since the storage bag can interfere with the action of the extension pedal 56.

Alternative Embodiments

No effort has been made to optimize the current pedal extension for manufacture. There are various possibilities with regard to the current pedal extension's manufacture. For instance, the current pedal extension could be made from a variety of materials. Instead of a rigid plastic sheet 20 on an aluminum frame, the footrest and storage compartment could be made from extruded plastic or other materials. The storage compartment could be manufactured as a self-contained storage space needing no additional bag. The handle 64 could be replaced or supplemented by a shoulder strap or back straps. The dimensions of the footrest and the storage compartment could be changed both vertically and lengthwise to accommodate children ranging in size but not yet large enough to properly reach the piano damper pedal. However, the current pedal extension has

been tested with many children. It has been found that the current dimensions work well for all of these test pianists. The human body is flexible at the ankle, knee, and hip. Therefore, one height fits most as one piano height fits most adult pianists.

5 Advantages

From the description above, a number of advantages this pedal extension become evident:

- 1) The fixed height of the box takes advantage of the human body's adjustability to eliminate unnecessary parts and weight.
- 10 2) The pedal extension is lightweight and portable.
- 3) The pedal extension can be used as a briefcase.
- 4) The pedal extension is sturdy enough for the pianist to use as a step.
- 5) The design universally fits all pianos.
- 15 6) The slight tilt of the pedal extension diminishes the force needed to operate the damper pedal.
- 7) The simplicity of use means that a small child can use it without adult assistance.
- 8) The pedal extension is safe to carry and use.
- 20 9) The simplicity of design implies low manufacturing cost and lower selling price than previous inventions.
- 10) The lightness will result in low shipping cost.

Conclusions, Ramifications, and Scope

25 It has been shown that this pedal extension can be used at piano lessons, contests, auditions, recitals, and in any other situation where a small person would like physical comfort and maximum control of the damper pedal of a piano.

Furthermore, this pedal extension has the additional advantages:

- 30 1) It encourages proper posture at the piano, resulting in less physical strain and fatigue.

- 2) Pianists can bring this pedal extension everywhere. Small pianists will not be forced to make uncomfortable adjustments to pianos lacking a pedal extension device.
- 3) The use of this pedal extension means that a pianist can learn to use the damper pedal properly at an early age before being able to reach a piano's pedal.
- 4) The slight upward tilt of the footrest makes the piano damper pedal easier to operate via the extension pedal.

Although the description of this pedal extension contains much specificity, these should not be construed as limiting the scope of the pedal extension but as merely providing an illustration of the present embodiment of the pedal extension. For example, the box could be made of wood or plastic right angle bars, or with solid walls of extruded plastic. The storage space could be made self-contained rather than using a bag. Thus the scope of this pedal extension should be determined by the appended claims and their legal equivalents, rather than by the example given above.

The complete disclosure of all patents, patent documents, and publications are incorporated herein by reference as if individually incorporated. Various modifications and alterations of this pedal extension will become apparent to those skilled in the art without departing from the scope and spirit of this invention.